

MEDAR/MEDATLAS II MEDITERRANEAN DATA ARCHAEOLOGY AND RESCUE/ MEDITERRANEAN ATLAS II - THE PHOSPHATE IN THE HISTORICAL DATA SETS (MAS3-CT98-0174/IC20-CT98-0103)

MEDAR Group, C. Maillard, Ifremer, Brest, co-ordinator

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Introduction : Importance of the data archiving for following up the environmental cycling

It has been stressed in several workshops and documents that the world-wide concern for protecting the marine environment, following up the environmental changes in the marine waters, and managing the living and non-living resources, request the compilation of long time series of observations of:

Dissolved Oxygen: deficiencies in the upper layers, which come from discharge of sewage, industrial, agricultural and aquacultural effluents, can result in diminution of higher life forms, liberation of toxic forms of metals and pathology in living organisms.

Nutrients: changes in nutrients fluxes, whatever natural or introduced to the sea partly as a result of human activity, can alter primary production and the bio-diversity, and can directly affect aquaculture, fishing activity.

Temperature and Salinity, which are the primary indicators of climate changes and allow the computation of other derived parameters such as density, sound velocity, permanent (geostrophic) currents, currently used in scientific and technical studies.

The objective of the MEDAR/MEDATLAS II project is to rescue, safeguard and make available a comprehensive data set of such parameters collected in the Mediterranean and Black Sea, through a wide co-operation of the Mediterranean countries. It includes compiling, safeguarding and making available historical data sets of:

♦ Temperature	♦ Salinity	♦ pH
♦ Oxygen	♦ Nitrate	♦ H ₂ S
♦ Nitrite	♦ Ammonia	♦ Alkalinity
♦ Total Nitrogen	♦ Phosphate	♦ Chlorophyll-a
♦ Total Phosphorus	♦ Silicate	

The archived data sets will be comparable and compatible by using a common protocol for formatting and quality checking. The database of observation data will be by qualified gridded products prepared by using efficient gridding and mapping methodology.

This project follows to previous successful pilot projects MAST/MEDATLAS (MAS2-CT93-0074) in which the presently most exhaustive database of temperature and salinity was produced, and MODB (MAS2-CT93-0075-BE) where the Variational Inverse Model for preparing objectively analysed (gridded) data was developed.

It is then expected to contribute to further exploitation of the experimental work, to preserve the existing data and improve the overall level of quality. Preservation and documentation of the data sets is improved by short time lag between data collection and release. Enhanced exchanges between data managers, and scientists from research and operational projects in the Mediterranean Basin, will contribute to this effort.

The Intergovernmental Oceanographic Commission of UNESCO, which insures its promotion through the international community, has endorsed this project.

Preliminary Results in Rescuing the Phosphate Data sets

The first (Benchmark 1) release conducted to make available about 4000 vertical profiles of phosphates and in addition, 400 more recent profiles still under scientific confidentiality. The eldest dates from 1930. The space distribution is given in Fig. 1.

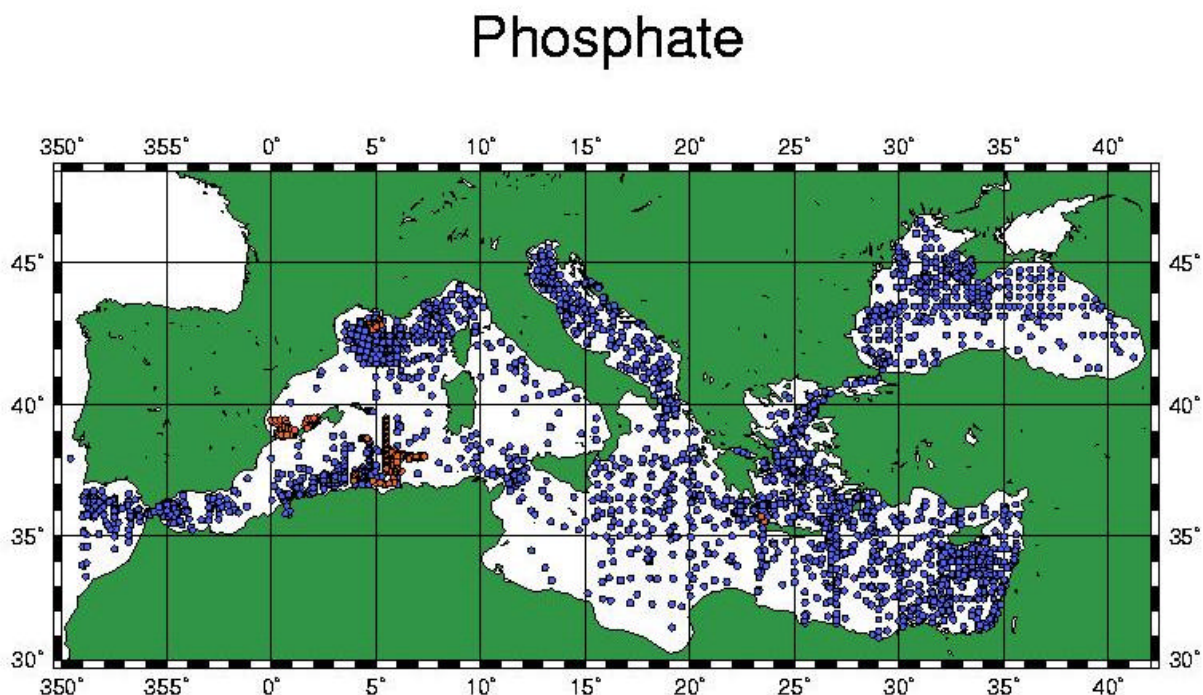


Fig. 1: Preliminary results from the PHOSPHATE data Rescue in the MEDAR Database
(in red, data still under scientific confidentiality)

Quality Assurance

All the profiles are submitted to automatic and visual checks, including the check of the location and date, data below the bottom depth, and more specifically for the data points :

- No constant profiles
- Out of the regional scale : *(0 to 4. millimole/m3)*
- Coherence with pre-existing statistics :LEVITUS 1998 1x1 degree for the phosphates
- Search for spikes and top and bottom gradient
- Redfield ratio (visula check only, in development)

After the automatic checks, the profiles are visualized in waterfall individual profiles and superposed profiles of the same cruise (fig. 2). As a result, the data are eliminated or a quality flag is added to each numerical value.

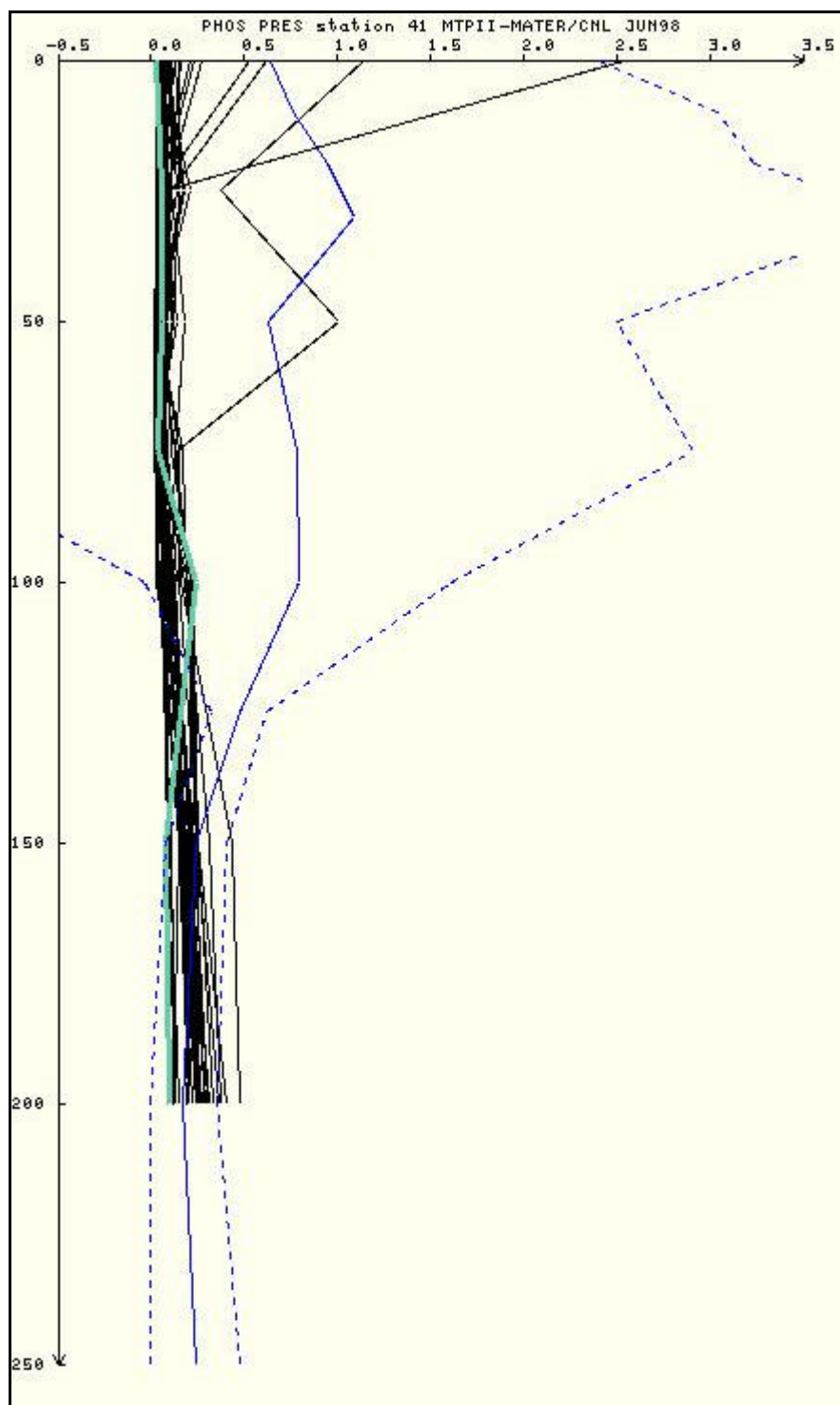


Fig 2: Example of Quality Checks of Phosphate profiles

More information on MEDAR/MEDATLAS

Web site : www.ifremer.fr/medar/